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10/580,535	05/25/2006	Daisuke Kumaki	0756-7707	5741
31780	7590	02/18/2009	EXAMINER	
ERIC ROBINSON			LL MEIYA	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/580,535

**Applicant(s)**

KUMAKI ET AL.

**Examiner**

MEIYA LI

**Art Unit**

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27-36 and 47-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-36 and 47-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date 5/25/06, 10/23/06, 12/24/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of invention VI, claims 27-36 and 47-56 in the reply filed on December 24, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on May 25, 2006, October 23, 2006 and December 24, 2008 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 27-36 and 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The claimed limitation of "a material", as recited in claims 27 and 30, is unclear as to which material applicant refers.
7. The claimed limitation of "an electron donor property", as recited in claim 30, is unclear as to which electron donor property applicant refers.
8. The claimed limitation of "an electron acceptor property", as recited in claim 30, is unclear as to which electron acceptor property applicant refers.
9. The claimed limitation of "the material", as recited in claim 33, is unclear as to which material applicant refers.
10. The claimed limitation of "a part of the first layer comprises molybdenum oxide", as recited in claims 36 and 56, is unclear as how a layer can comprise two layers.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 27-32 and 34-35, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Fujita et al. (6,566,807).

As for claim 27, Fujita et al. show in Fig. 9 and related text a light-emitting element comprising:

- a pair of electrodes 2/8; and
- a first layer 52 containing a light-emitting material;
- a second layer 6/71 containing a first organic compound 17 and a material 27 having an electron donor property for the first organic compound; and
- a third layer 4/31 containing a second organic compound 13 and a material 23 having an electron acceptor property for the second organic compound,

wherein the first layer, the second layer, and the third layer are interposed between the pair of electrodes and sequentially formed in such a way that the third layer is formed to be in contact with one of the pair of electrodes.

As for claim 28, Fujita et al. show the first organic compound is an organic compound having an electron transporting property (Col. 12, line 16).

As for claim 29, Fujita et al. show the first organic compound is a metal complex having a ligand with a  $\pi$ -conjugated skeleton (Col. 9, lines 40-42).

As for claim 30, Fujita et al. show a material having an electron donor property is an alkali metal, an alkaline earth metal, or a rare earth metal (Col. 10, lines 65-67).

As for claim 31, Fujita et al. show the second organic compound is an organic compound having a hole transporting property (Col. 12, line 12).

As for claim 32, Fujita et al. show the second organic compound is an organic compound having an aromatic amine skeleton (Col 7, line 37).

As for claim 34, Fujita et al. show an electrode of the pair of electrodes being in contact with the third layer is made from a conductive material formed by sputtering (Col. 7, lines 16-24).

Regarding the process limitations ("forming by sputtering"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

As for claim 35, Fujita et al. show the conductive material is transparent to visible light (Col. 7, line 20).

13. Claims 27-35 and 47-55, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Tyan et al. (6,917,159).

As for claims 27 and 47, Tyan et al. show in Fig. 6A and related text (i.e. example 8b) a light-emitting element 200 comprising:

- a pair of electrodes 212R/216T; and
- a first layer 214C containing a light-emitting material;
- a second layer 214D/214E containing a first organic compound and metal having an electron donor property for the first organic compound; and
- a third layer containing 214A/214B second organic compound and a metal oxide having an electron acceptor property for the second organic compound,

wherein the first layer, the second layer, and the third layer are interposed between the pair of electrodes and sequentially formed in such a way that the third layer is formed to be in contact with one of the pair of electrodes.

As for claims 28 and 48, Tyan et al. show the first organic compound is an organic compound having an electron transporting property.

As for claims 29 and 49, Tyan et al. show the first organic compound is a metal complex having a ligand with a  $\pi$ -conjugated skeleton (Col. 10, line 40).

As for claims 31 and 50, Tyan et al. show the second organic compound is an organic compound having a hole transporting property.

As for claims 32 and 51, Tyan et al. show the second organic compound is an organic compound having an aromatic amine skeleton (Col. 8, line 65; Col. 9, line 16).

As for claims 30 and 52, Tyan et al. show the metal is an alkali metal, an alkaline earth metal, or a rare earth metal (Col. 28, line 28).

As for claims 33 and 53, Tyan et al. show the metal oxide comprises at least one compound selected from the group consisting of vanadium oxide, chromium oxide, molybdenum oxide, cobalt oxide, and nickel oxide (Col. 28, lines 16-17).

As for claims 34 and 54, Tyan et al. show an electrode of the pair of electrodes being in contact with the third layer is made from a conductive material formed by sputtering (Col. 28, lines 12-13).

Regarding the process limitations ("forming by sputtering"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in

"product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

As for claims 35 and 55, Tyan et al. show the conductive material is transparent to visible light (Abstract).

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 36, 47 and 56, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (6,566,807) in view of Tyan et al. (6,917,159).

As for claim 47, Fujita et al. disclosed substantially the entire claimed invention, as applied to claim 27 above.

Fujita et al do not explicitly state that the material having the electron donor property is a metal for the first organic compound and the material having the electron acceptor property is a metal oxide for the second organic compound.

Tyan et al. teach in Fig. 6A and related text (i.e. example 8B) the material having the electron donor property is a metal for the first organic compound and the material having the electron acceptor property is a metal oxide for the second organic compound.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use a metal and a metal oxide, as taught by Tyan et al., as a material for first and second organic compounds, respectively, in Fujita et al.'s device, in order to improve the electroluminescent characteristics of the device.

As for claims 36 and 56, the prior art combined device shows a part of the first layer comprises molybdenum oxide.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEIYA LI whose telephone number is (571)270-1572. The examiner can normally be reached on Monday-Friday 7:30AM-5:00PM Eastern Standard Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on (571) 272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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/M. L./

Examiner, Art Unit 2811

2/11/2009

/Ori Nadav/

Primary Examiner, Art Unit 2811